Fusion Splice Recommendations for OFS Rollable Ribbon Using the Fitel® S124M12 Fusion Splicer

Contents **Section**

1. General

1.1 Follow the applicable equipment manufacturer's guidelines for setup and maintenance of all splice equipment.

1.2 Maintain clean equipment and a clean splice environment being especially wary of windy and/or dusty conditions.

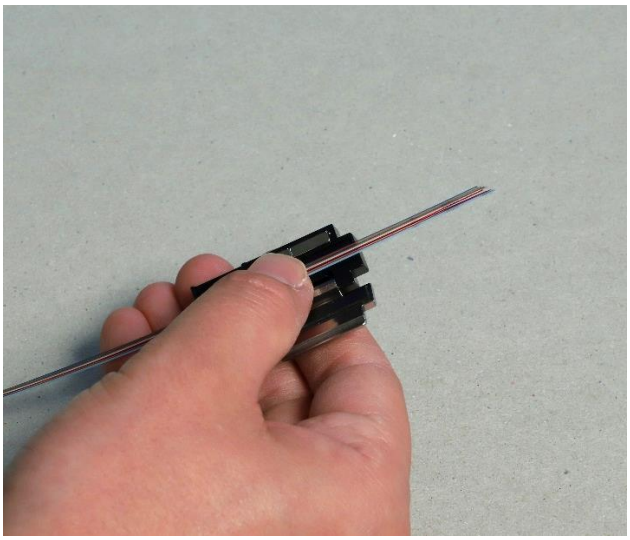
2. Preparing OFS Rollable Ribbons for Splicing

2.1 OFS recommends *Fitel* S927B 40 mm Ceramic Splice Protection Sleeves when splicing OFS Rollablle Ribbon. These splice sleeves will minimize fiber twist inside the sleeve and provide optimum splice loss performance.

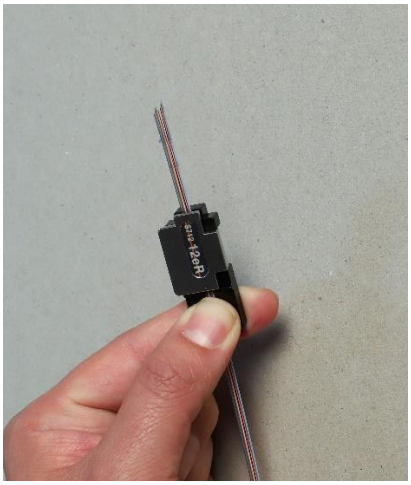
2.2 OFS reccomends S712-12e holders when splicing OFS Rollable Ribbon. These holders prevent fiber slippage during the stripping process.

2.3 Slide the Fitel 40 mm Protection Splice Sleeve over the ribbons. Note: If fibers have separated from the ribbon, or if the ribbon has split lengthwise, refer to IP-091, *OFS Ribbonizer Kit for Loose Tube and Rollable Ribbon Cable* for repair instructions.

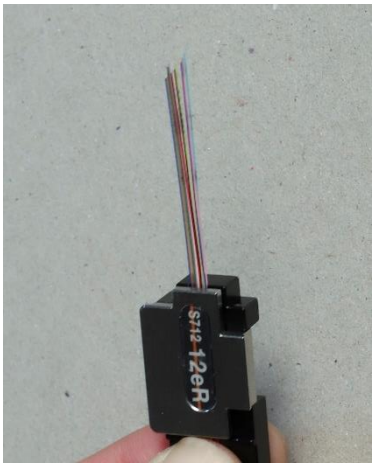
2.3 Place the ribbon flat in the holder leaving approximately 4 inches (100 mm) of ribbon exposed past the edge of the holder. Pull back the ribbon until there is only 1 inch (25 mm) exposed from the edge of the holder. Ensure the fibers are lying flat. A 25-28mm strip length is recommended for removal of the fiber color and coating.



2.4 Ensure the fibers do not stack on top of each other, the fiber spacing is correct, and the edge fibers do not flare out.



Fibers are lying flat



Fibers stacking

2.5 When the fibers are positioned correctly, close the lid of the holder.

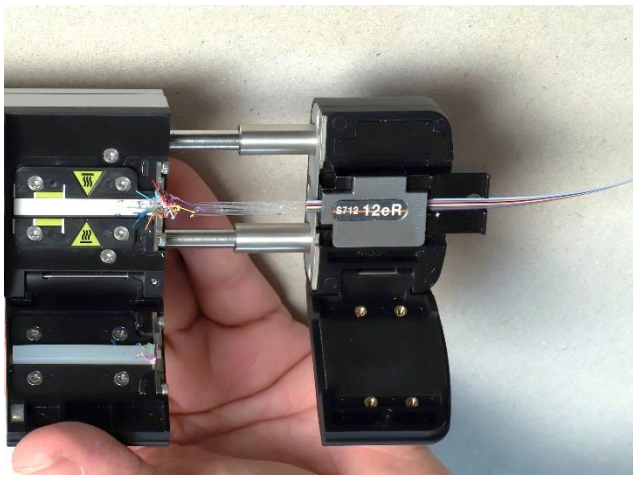
2.6 A FITEL S218R-200 or S218R-Plus thermal stripper is recommended to remove the ribbon matrix and fiber coating. Ensure the stripper blades are clean and in good condition. For OFS rollable ribbons, a high heat setting is recommended. Set the temperature of the 218R-200 to the high position using a flathead screwdriver. A high temperature is required to remove the matrix and color coating from the fibers.

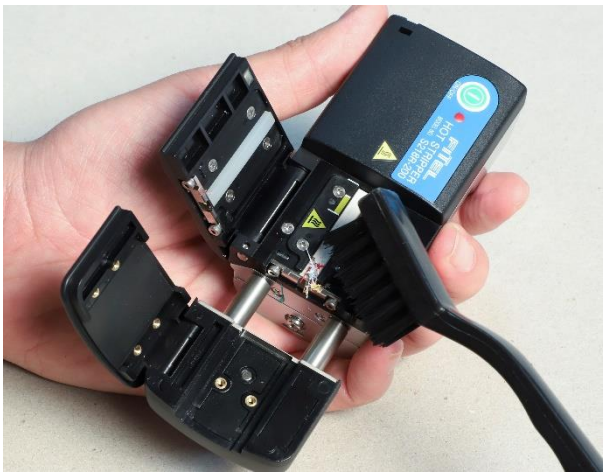
Fitel S218R heated stripper

Temperature setting

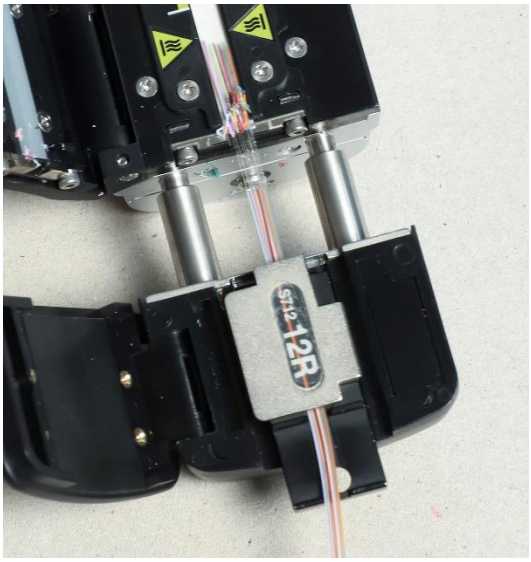
2.7 Place the ribbon holder into the thermal stripper. Ensure the ribbon is lying flat in the thermal stripper and no fibers are crossed over. The exposed ribbon length should fall between the yellow marks indicated on the stripper. Close the lids and apply adequate pressure to holder and heater element. When the LED light goes from a solid red to a SOLID green, apply firm pressure to both the heater and holder lids of the stripper. Slowly slide the holder section away from the heater block.

2.8 Open the lid of the heat chamber side on the stripper. The fiber coating and color will be present in the stripper. Brush the stripper out after each use.

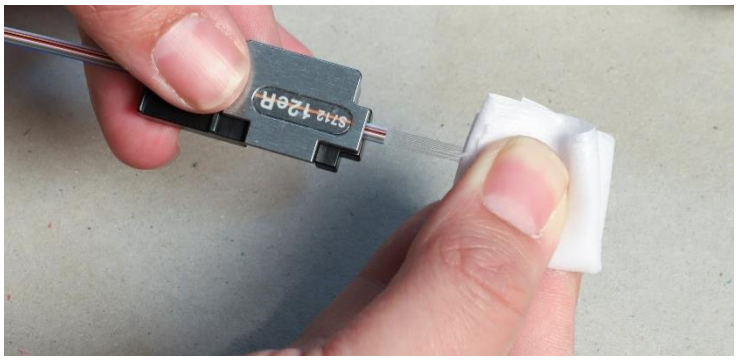




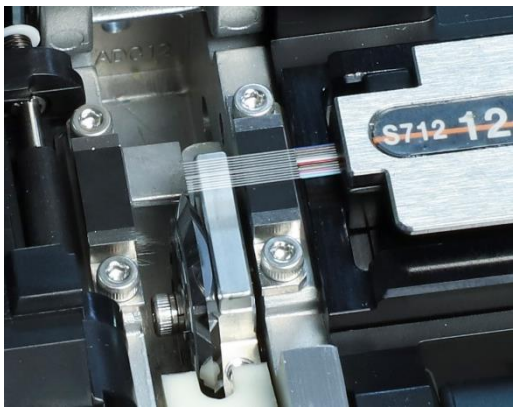
2.9 Make sure the fibers do not slip during the stripping process. If slippage is observed, trim the ribbon and re-strip.



Clean the exposed fibers with a lint-free wipe and fiber preparation fluid. If the fiber color is not completely removed with cleaning wipe, clean the stripper with a brush and re-strip the ribbon to remove the remaining fiber coating and color.

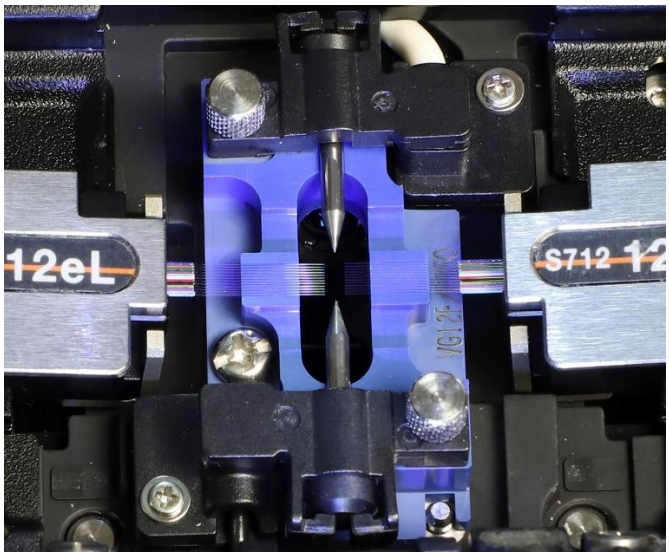


2.10 Cleave the fibers with a mechanical ribbon cleaver. Keep the cleaver in good working condition and rotate the blades as required for the best cleave results and optimal splicing. When placing ribbon into the cleaver, make sure that the fibers are not overlapping which may cause bad cleaves or broken fibers.



3 Mass Fusion Splicing of OFS Rollable Ribbon

3.1 Place the ribbons and holders into the splicer. Before closing the splicer lid ensure the fibers are sitting correctly in the v-grooves. It may be neccessary to adjust the the holders to allow fibers to sit correctly. After closing the lid confirm that all 12 fibers and are sitting in the v-grooves.

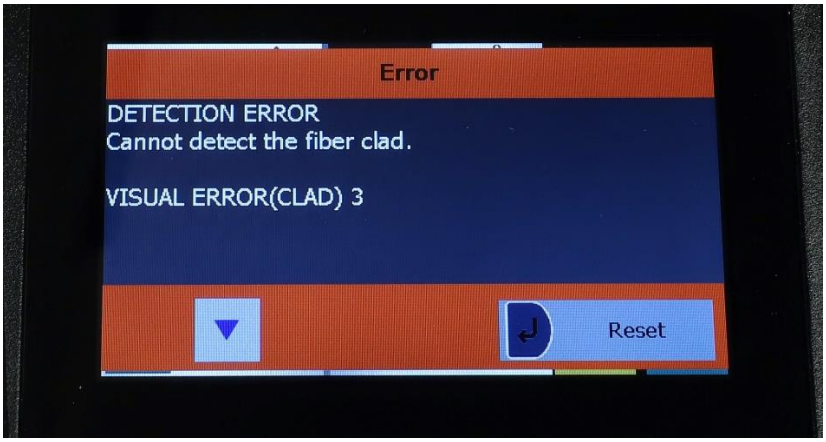


Fibers placed in V-grooves

3.2 Set the FITEL S124M12 into the SM12 Single Mode 12 fiber or Auto program.

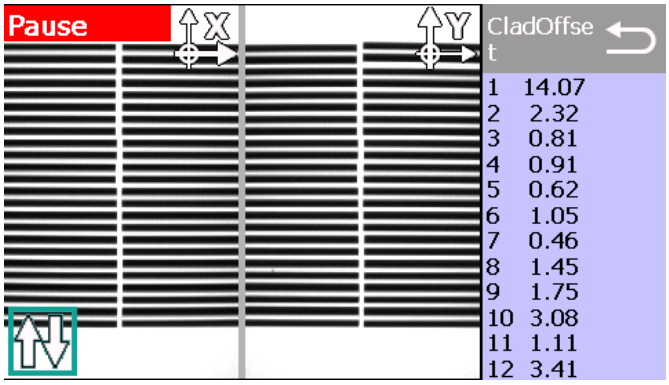
3.3 If the splicing process does not begin automatically, press the start button to begin the splice. After the ribbons have moved together the machine will pre-arc to clean and remove any remaining dust from the fibers.

3.4 If data output is turned on, review the data on the screen. Check to ensure that all 12 fibers are positioned correctly. If the fibers are sitting incorrectly the fusion splicer will display errors. If needed, reposition the fibers in the v-grooves until all fibers are correctly positioned.

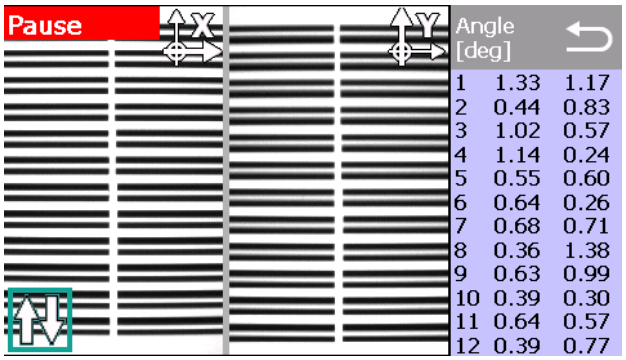


3.5 If data output is turned on, review the data for Axis Offset, Cleave Angle and Gap. Each screen will be shown on a rotation. If parameters are out of specification the values will be shown in red.

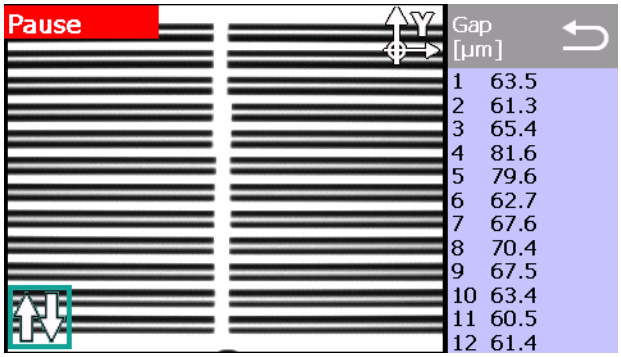
3.6 If axis offset is out of specification or axis offset error occurs, opening and closing the lid to make the fibers move may correct the offset or it may be necessary to adjust the holders back and forth until the offsets are corrected. Axis offset affects splice loss values so lower values are preferred. If adjusting the holders and ribbons do not correct the error, the v-grooves on the machine may need to be cleaned.



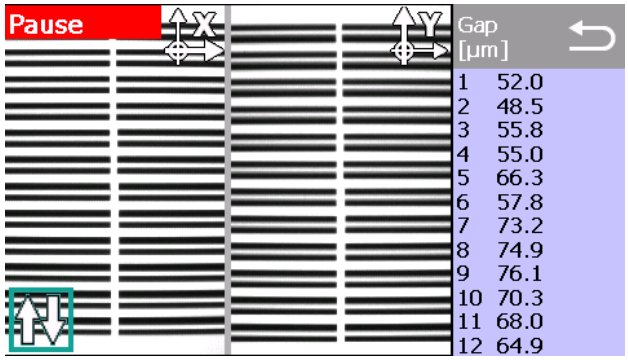
3.7 Cleave angles are shown in degrees for fibers on both sides (left and right). Cleave angles are critical during ribbon splicing. Bad cleave angles may cause air bubbles in splice or high splice loss. If cleave angles are failing it will be necessary to check condition of cleaver blade and rotate to next position. Typical cleave angle specification is ≤ 5.0 degrees for ribbon fiber.



3.8 Gap is defined as the distance between the two fibers displayed in µm. Gap is typically easy to see on the screen. If there is too much of gap difference between fibers, the splice loss could be high. It may be necessary to re-cleave when the gaps are wide. The gap is due to fibers moving independently during the thermal stripping process or cleaving process.



Wide Gap on fibers 4/5

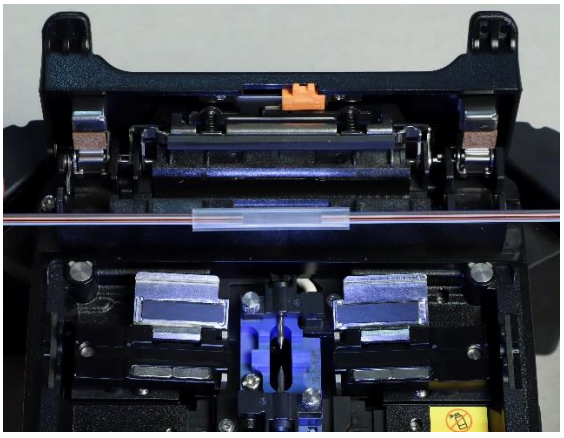


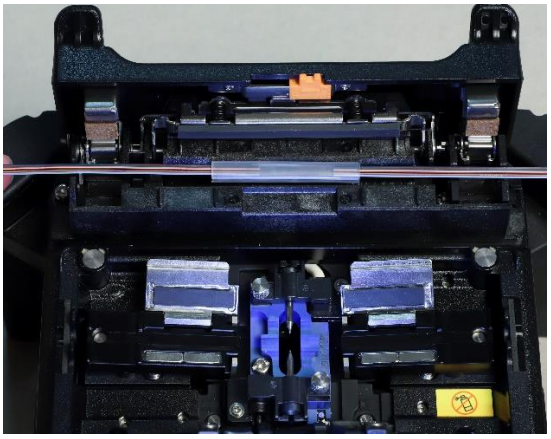
Gap value is similar for all fibers

3.9 When all the splice parameters are acceptable, press the splice button to complete the splice. After splicing, review the screen for defects. Values shown are splice loss estimates and are not actual values. Estimated splice loss will indicate if the splices are acceptable but bi-directional OTDR measurements are required to confirm actual splice loss.

Splice loss estimates on screen

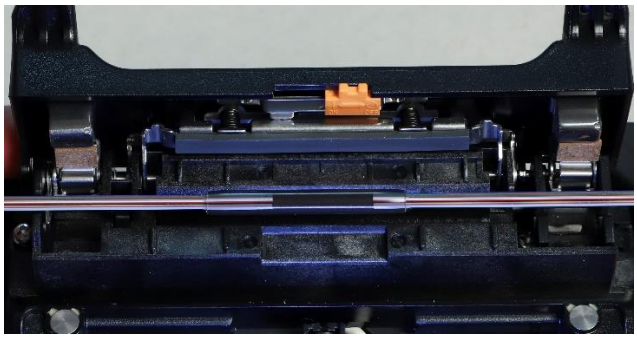
3.10 After completing the splice, the protective splice sleeve must be installed over the splice. Ensure the correct heater program is selected for the protection sleeve being used. Slide the sleeve over the splice making sure the ribbons are flat and do not twist inside the sleeve. Apply slight tension to the ribbon to keep the ribbons straight. Place the sleeve into the heater and ensure the ribbons remain straight.





Ensure the ribbon is straight while placing in the heater well.

3.11 Complete the heating process and remove the spliced ribbons and protective sleeve from the heater. The protection sleeve will be hot and may be placed on a cooling tray. Once cool, ensure the ribbon and fibers are straight in the sleeve and store for installation in the closure.



Ensure the ribbon and fibers are straight without twisting.

For additional information please contact your sales representative. You can also visit our website at www.ofsoptics.com or call 1-888-FIBER-HELP (1-888-342-3743) from inside the USA or 1-770-798-5555 from outside the USA.

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